

① The first derivative of the function f is defined by $f'(x) = \sin(x^3 - x)$ for $0 \leq x \leq 2$. On what intervals is f increasing?

- (A) $1 \leq x \leq 1.445$ only
- (B) $1 \leq x \leq 1.691$
- (C) $1.445 \leq x \leq 1.875$
- (D) $0.577 \leq x \leq 1.445$ and $1.875 \leq x \leq 2$
- (E) $0 \leq x \leq 1$ and $1.691 \leq x \leq 2$

② A particle moves along a straight line with velocity given by $v(t) = 7 - (1.01)^{-t^2}$ at time $t \geq 0$. What is the acceleration of the particle at time $t = 3$?

- (A) -0.914 (B) 0.055 (C) 5.486 (D) 6.086 (E) 18.087

③ The derivative of the function f is given by $f'(x) = x^2 \cos(x^2)$. How many points of inflection does the graph of f have on the open interval $(-2, 2)$?

- (A) One (B) Two (C) Three (D) Four (E) Five